ABSTRACT OF THE INVENTION

A visualization console acquires a 3D data set representing a 3D scene. The visualization console then transfers at least some of the 3D objects within the 3D scene to a pool of

5 workstations. The collection of workstations associates an identifier with each of the 3D objects, and manages the storage of these 3D objects. Sometime later, the visualization console sends a request to the pool of workstations for the data needed to render a 3D object contained in the workstation. The workstations perform multiresolution modeling computation and create a different set of models with the appropriate level of detail for the 3D object identified by the

10 request. The workstations then send the mesh representation of the 3D objects requested to the visualization console for display. The visualization console will thus be able to render these models more efficiently than prior systems that either render the complete 3D scene or perform multiresolution computation by themselves.